NAVAL WAR COLLEGE
Newport, R.I.

SITUATIONAL AWARENESS IN MILITARY OPERATIONS OTHER THAN WAR: A LOOK AT MEASURES OF EFFECTIVENESS IN HUMANITARIAN ASSISTANCE OPERATIONS

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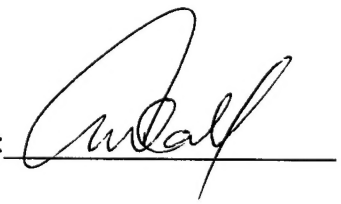
A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: 

7 February 1997

Paper directed by Professor Elizabeth McIntyre
Joint Military Operations Department

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED	
2. Security Classification Authority:	
3. Declassification/Downgrading Schedule:	
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.	
5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT	
6. Office Symbol: C	**7. Address:** NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207
8. Title (Include Security Classification): Situational Awareness in Military Operations Other Than War: "A Look at Measures of Effectiveness in Humanitarian Assistance Operations" (U)	
9. Personal Authors: LCDR Andrew N. Wall, USNR	
10.Type of Report: FINAL	**11. Date of Report:** 7 February 1997
12.Page Count: 34	
13.Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.	
14. Ten key words that relate to your paper: Measures-of-effectiveness, situational-awareness, Humanitarian-Assistance-operations, MOOTW, operations, planning, estimates, interagency-coordination, assessment, and variables.	

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This paper, using humanitarian assistance operations as an example of military operations other than war, examines the nature of such operations and argues that the development of appropriate measures of effectiveness is crucial to success. It presents a summary of concerns relating to the development of measures of effectiveness and proposes a design process that may be used to ensure that measures of effectiveness meet mission requirements and take the fullest possible advantage of available information and opinion. It concludes that measures of effectiveness should be incorporated into the planning process. Details and a summary of possible measures of effectiveness related to humanitarian assistance operations are provided in two appendices.

16.Distribution / Availability of Abstract:	**Unclassified** X	**Same As Rpt**	**DTIC Users**
17.Abstract Security Classification: UNCLASSIFIED			
18.Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT			
19.Telephone: 841-6461		**20.Office Symbol:** C	

ABSTRACT

Measures of Effectiveness in Military Operations Other Than War

Increasingly military forces are being employed in new types of what have come to be called Military Operations Other Than War. These operations are complex, require coordination with a wide variety of agencies, are often protracted in duration and are likely to be relatively unfamiliar to the commander. In such circumstances it is easy for the commander to lose his or her situational awareness.

The paper, using humanitarian assistance operations as an example of military operations other than war, examines the nature of such operations and argues that the development of appropriate measures of effectiveness is crucial to the success of such operations. It presents a summary of concerns relating to the development of measures of effectiveness and proposes a design process that may be used to ensure that measures of effectiveness meet mission requirements and take the fullest possible advantage of available information and opinion. It concludes that measures of effectiveness should be incorporated into the planning process. Details and a summary of possible measures of effectiveness related to humanitarian assistance operations are provided in two appendices.

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INTRODUCTION

Increasingly military forces are being employed in new types of what have come to be called Military Operations Other Than War (MOOTW). For an operational commander and staff, these operations present significant challenges; in many areas they are relatively unfamiliar, complex, involve a wide variety of agencies and actors, and are often protracted in duration. In such circumstances, it is easy for the operational commander and staff to lose their situational awareness; some means of evaluating progress relative to aims, objectives, and culminating points is a vital necessity. The purpose of this paper is to investigate how measures of effectiveness (MOEs) can assist the operational commander in maintaining his or her situational awareness in a MOOTW context. The thesis is that a set of MOEs, properly formulated and based on a broad base of knowledge, can aid the commander not only in maintaining situational awareness, but also in shaping the progress of the operation, in evaluating the effectiveness of actions, and in objectively assessing the progress of the operation toward recognized objectives.

The term MOOTW describes a range of operations too diverse to analyze effectively within the bounds of a single research paper. It was necessary, therefore, to focus on one particular form of MOOTW, in this case Humanitarian Assistance (HA). Since HA operations share characteristics in common with many other forms of MOOTW (e.g., their complexity, interagency nature and nonmilitary focus), lessons drawn from an examination of HA operations should have direct and indirect relevance to other forms of MOOTW.

HA operations, like other forms of MOOTW, pose special concerns to commanders, staffs and forces. One such concern is fundamental to all others--that of forming an accurate estimate of the situation on which to base further action. An

important element in this process is the formulation of appropriate Measures of Effectiveness (MOEs). History has shown that the ability to assess effectiveness and progress are critical to a commander's ability to develop and maintain situational awareness in both traditional military operations and Military Operations Other Than War. Unfortunately, appropriate MOEs are difficult to develop--particularly in cases of MOOTW. Applicable doctrinal guidance provides some limited information on MOEs; nevertheless, a more in depth treatment of this subject may pay dividends. Toward this end, this paper will discuss characteristics desirable in MOEs and present a generic methodology for identifying and developing MOEs appropriate to a given MOOTW scenario.

An understanding of the nature of HA operations is needed before we can analyze what is required to develop MOEs that are likely to prove beneficial. The first section of this paper, therefore, will look at the nature of military support to complex humanitarian assistance operations. Next, the issue of assessing effectiveness during such operations will be addressed. We will then look at the importance of determining and employing appropriate MOEs and examine a possible process for developing MOEs within the MOOTW planning environment. A set of sample MOEs for HA operations is provided as an appendix. Throughout the paper, terminology will be developed and clarified as required. Appropriate reflections and conclusions will be drawn.

MOOTW AND HUMANITARIAN ASSISTANCE OPERATIONS

MOOTW in general represent a challenge because, by their very nature, they require decisions and actions often inconsistent with traditional military doctrine and practice. Further, the operational commander must often integrate military participation within the larger effort of a multiplicity of other agencies.

While MOOTW take many forms, Humanitarian Assistance (HA) is among the most common, and is likely become even more so. Joint Publication 3-07, *Joint Doctrine*

for Military Operations Other Than War, defines HA as "operations [that] relieve or reduce the results of natural or manmade disasters or other endemic conditions such as pain, disease, hunger, or privation in countries or regions outside the United States."[1] In recent writings the term "Complex Humanitarian Emergency" is used to highlight the fact that such events are rarely unidimensional, but involve a range of interrelated economic, political, infrastructure, social and cultural factors. A recent report by the United States Mission to the United Nations notes that such situations have increased 60 percent in the past ten years. While there were five declared humanitarian emergencies in the five-year period of 1985-89, there were twenty in 1990 alone and the numbers did not peak until 1994 when twenty-six emergencies were declared. Despite a leveling off in the last two years, the perception is that the numbers of such situations are spinning out of control and there are still some forty million people affected.[2] Unsurprisingly, the United States is the largest donor to relief campaigns, providing in the aggregate 25 percent of the total aid.[3] In FY 1994, US military expenditures in support of HA operations amounted to $428 million. Total relief expenditures that year were in excess of $6 billion.[4] Aside from the dollar costs involved, such operations are costly in terms of optempo/perstempo and lost training opportunities. Enhancing the efficiency of such operations will, therefore, pay dividends that may be applied elsewhere.

In planning such operations the following considerations apply:

Duration. Complex humanitarian emergencies are long-lived. The *average* duration of a humanitarian emergency is eight years and they are capable of stretching on much longer (Eritrea lasted thirty years).[5] Joint Pub 3-07 notes that "HA provided by US forces is generally limited in scope and duration."[6] While military assistance will likely not be required throughout the duration of a given emergency, we may be overly optimistic if we expect to make a lasting improvement with a short-term commitment. It is fair to note that the duration of military involvement in recent operations of this sort has consistently exceeded projections--witness Haiti, Somalia, and Bosnia. Some have

noted that, given the nature of these situations, it may be unrealistic, perhaps counterproductive, for the military to plan on a quick "in-and-out" commitment. In any case, the turnover of military functions to civilian agencies and the withdrawal of military forces is a critical planning consideration. The ability of a commander to assess the situation with regard to this issue is an important consideration when formulating MOEs.

Restraint and Security. While it would be easy to suppose that humanitarian assistance will be rendered in a cooperative environment, this is not necessarily, nor even likely, to be the case. It will certainly not be the case in circumstances where military forces are doing more than simply providing immediate logistical support. Somalia and Haiti, taking two quite different examples, show that assistance is unlikely to be welcomed at all times by all people. Thus, as in other cases of MOOTW, the commander must be prepared to deal with the issue of employing force to meet mission requirements, including security, while acting to minimize coercion, maximize cooperation and maintain legitimacy.

Multi-Agency Coordination Required. Operations are likely to have to be coordinated with many other agencies and expert local knowledge held by agencies such as OXFAM, the World Food Program, the ICRC and various UN organizations may be critical to the operation. Other nations' military forces may also be involved. While military forces may be essential to the ongoing operation, these forces are likely to be seen by the other agencies as playing a supporting role as opposed to leading the effort. Therefore, it is essential that the commander be prepared to deal constructively with a variety of agencies and actors---the representative of which may on some occasion be adversarial or downright hostile to military intervention. Thus the commander must throughout the course of the mission consider the interests of a diverse set of players.

Not Susceptible to Simple Solutions. As in many other forms of MOOTW, the complex nature of the situation must be considered. Simple solutions are often ineffectual because, despite their apparent feasibility, they fail to address the fundamental

issues of the case. It is, for example, almost a truism that famines result not so much from the lack of food itself, but from some characteristic of the distribution system or broader political economy and society. A response that simply distributes food is at best only a treatment of the symptom. The sort of in-depth knowledge required to formulate an operational plan in support of effective assistance is not likely to be organic to the commander's staff and yet it is clearly required. Accordingly, the commander must actively seek such information and be open to collecting it from a variety of sources.

High Political Content. The preceding two points highlight the heavy political content inherent in HA operations. As noted by Andrew Natsios of World Vision, "entry itself is a political act."[7] It is important for the operational commander to keep in mind that US involvement is not likely to be viewed as purely altruistic by either the local populace or the world community. What this means is that, quite aside from seeking a working accommodation with other agencies, the commander must consider as a part of the planning and execution continuum the need to "win hearts and minds" in the political arena. The media plays heavily in this, of course, and the story for them may have little relation to the reality of the situation. As Thomas Ricks of the *Wall Street Journal* noted, "In Somalia the story was feeding the children."[8] While the media may, in many ways, exert a positive influence, they may also develop a popular understanding of the issues that may be at odds with the more complex realities. If a more sophisticated understanding of the issues is needed to garner support for the real mission, the operational commander may need to be pro-active in ensuring the media has the access and opportunities needed to understand the situation and get the word out.

Despite the complexities and potential pitfalls, one thing is clear: "Military forces will continue to play a role in some humanitarian emergencies . . . . Only military forces have the capability to move large volumes of aid quickly. They can make the crucial difference in stabilizing conditions prior to transferring responsibility to civilian relief

organizations."[9] Given US policy, we are likely to be faced with an increasing number of this sort of commitment.[10]

ESTIMATES, PLANNING, AND MEASURES OF EFFECTIVENESS

Our focus here is on how an operational commander and staff, tasked with a complex and politically-charged mission, can best develop, execute, and assess the effectiveness of a plan that must consider the needs and interests of a wide range of parties to the affair while at the same time maintaining situational awareness and ensuring the security of his own and friendly forces.

While the broader operational planning process is not the focus of this paper, a word on that topic is appropriate here. The planning process is continuous in nature and includes the development, execution and constant reevaluation of the plan and the estimate of the situation upon which that plan is based. Thus planning cannot be separated from execution. Together they form a "planning-execution continuum" in the form of the classic "Shewart Cycle" (often called a Plan-Do-Check-Act Cycle) of process management or its conceptual twin the "Observe-Orient-Decide-Act (OODA) Loop" that has gained much attention as an element of information warfare. As the cycle progresses, and particularly during the execution phase, the commander's and staff's attention is diluted and situational awareness is most susceptible to degradation. Because of this effect, planning documents and related guidance stress the commander's responsibility "to assess the concurrent changes in the situation, modify the original decision and adjust plans and directives accordingly."[11] A properly constructed set of MOEs serves this purpose by helping the commander determine which courses of action are effective, whether mission emphasis and resource allocation is appropriate, when to shift from one phase of the operation to another, and, ultimately, when the mission is complete.[12]

Terminology

Measure of Effectiveness. On the whole, joint and service doctrine publications relating to the planning process make only scant mention of measures of effectiveness; a clear definition, common usage and prescription for use is lacking. For the purpose of this paper, the term "measure of effectiveness" is taken to mean a measure, generally (but not necessarily exclusively) quantitative in nature, of some variable of a criterion closely related to the objective or purpose of a given course of action. Conceptually, MOEs can be seen as having two distinct, but not mutually exclusive, natures. First, they may, based on probability functions and predictive models, serve as an aid in determining the likely relative effectiveness of proposed courses of action. In this sense they serve a *comparative* or *predictive* purpose and hence aid the commander in choosing the best course of action during the earlier phases of the planning/execution cycle. In the second sense, MOEs are used to determine the effectiveness of an ongoing course of action. In this sense they, based on empirical observations of events in progress, serve an *evaluative* purpose and hence aid the commander in developing and maintaining situational awareness during the execution phase of the planning/execution cycle.

Criterion. A standard on which to form a judgment. In the case of measures of effectiveness related to humanitarian assistance missions, an example of a criterion related to the objective might be security of food shipments via surface transport.

Variable. A variable, or variable characteristic, is some characteristic of the criterion that may vary over time. A variable characteristic of the criterion described above, for example, might be the amount of relief material shipped without incident over a particular road expressed as a percentage of the total material shipped via the same means.

Sensitivity. A characteristic of a well-constructed MOE that implies an ability to reflect change in the selected variable that result from the performance of the

commander's or opponent's actions while not being overly influenced by extraneous factors.[13]

Usefulness. A characteristic of a well-constructed MOE that refers to the fact that a measure must be capable of providing timely information to a commander.[14] "Meaningful" is sometimes used in the same sense.

Situational awareness. The term "situational awareness" is taken to mean knowledge of the circumstances prevailing in the operational environment. Situational awareness, when combined with judgment, allows the commander to form an orientation with regard to the movement and momentum of events relative to culmination, the objective(s) and overall aim. Obviously, situational awareness is critical to effectiveness.

Design Criteria

It is the thesis of this paper that, not only are MOEs critical to maintaining situational awareness, they may also shape the character of the operation itself and profoundly affect its development and direction. The old adage "You get what you inspect, not what you expect" has a corollary: "You also get what you measure, so be careful what you ask for." Thus, implementing MOEs that run counter to methods employed in the field is likely to frustrate subordinate commanders and result in false measures. Additionally, implementing MOEs that undermine the principles of war or MOOTW emphasized in mission development is likely to result in conflicts of interest manifested in a variety of ways. For these reasons MOEs must be carefully constructed so as to provide the commander with useful information on which to judge the progress of the operation while at the same time complementing the character of the concept of operations.

Both *Naval Operational Planning* (NWP 11) and the Air Land Sea Application Center's *Multiservice Procedures for Humanitarian Assistance Operations* provide brief criteria for MOE selection, stressing the need for a clear connection between the MOE

and the objective.[15] Building on the groundwork laid by these publications, below is a listing of characteristics required or highly desirable in MOEs. Note that MOEs are best considered as a part of an integral set rather than as separate measures. While all the characteristics listed below are not required by each specific MOE, taken as a whole, the set of MOEs selected for use should:

Reflect criteria for mission success. MOEs must clearly focus on the aim and objectives of the mission. MOEs that distract attention from the central purposes of the mission should be rejected.

Help the commander assess the readiness of other agencies to take over responsibility when military forces withdraw. One goal in all HA operations is returning the area to normal life. The departure of the military and turnover of functions to civilian authorities is a key step in this process. Therefore, MOEs should be developed that will help the commander assess the status of factors bearing on the ability of other agencies and organizations to take over responsibility for services and undertake tasks provided by the military.

Serve as a basis for comparing the relative merits of alternate courses of action. MOEs must aid the commander in first selecting and then continuously reevaluating the effectiveness of operations in progress and possible alternatives.

Be reasonable in number. Too many MOEs are likely to be counterproductive. MOEs that provide redundant, dubious, or useless information should be rejected to avoid cluttering the decision making process with extraneous data. There is no "magic number" of MOEs that should be developed for any given operation. The key is to develop a set of MOEs that meets the commander's needs without imposing an analytical or administrative burden on the staff or field units. In rough terms, probably at least six MOEs are required to support basic decision making and additional MOEs above an upper limit of about 20 are likely to flood key decision makers with superfluous data.

Be sensitive to changes in the variable. This seems self-evident, but nevertheless deserves attention. MOEs must be developed that are capable of registering changes in the variables without being unduly subject to extraneous influences. This is a question of developing a methodology to ensure the variable can be assessed accurately and objectively, while changes due to extraneous influences can be recognized and analyzed as may be required.

Be based on a broad base of knowledge. Lessons learned compiled from a variety of humanitarian assistance operations stress that input from the full range of participating agencies and organizations is essential. Humanitarian assistance operations, like other forms of MOOTW, are generally undertaken by a concert of agencies and military participation, while a key component, is only a fractional part of the overall effort. Many of the other agencies participating will have significant experience, insight specific to the case at hand, local contacts of use, and other knowledge that may prove useful in evaluating the situation and developing a plan that can be executed to optimum effect. Representatives from international organizations (IOs) as well as local, regional and world nongovernmental organizations (NGOs) and private volunteer organizations (PVOs) should be consulted during the initial planning phase. Moreover, close liaison with these organizations should be maintained throughout the mission as they may be able to provide critical situation insights that would otherwise be lost. Note, however, that they will also have divergent interests and may be, for a variety of reasons, hesitant to work hand in glove with military authorities.[16]

Be objective in nature. As in traditional military operations, MOEs considered in HA should measure, when possible, meaningful variables that can be described in objective terms. This is, however, somewhat more difficult in MOOTW situations where standardized models, probability functions, exchange ratios and the like are less likely to be available and, if available, may be of suspect validity since much of MOOTW is not conducive to the development nor application of such models.

Where they **cannot** be objective, be clearly caveated. It is not always possible, nor is it always desirable, to develop quantitative measures. Many issues critical to mission success, e.g., legitimacy, have few objective indicators. In cases where the subjective content of observations and evaluations is high, it should be clearly understood by all concerned that the observations are subjective in nature. Perception, intuition, judgment and a whole array of other intangibles also play a role in the development and execution of an effective plan--they are also critical in the development of MOEs. However, actual evaluations based on perceptions that are entirely or nearly entirely subjective in nature are not likely to be accurate in the formal sense of the word. Opinions, especially informed opinions, have value, but should not be confused with fact.

Help the commander assess changes in the operational environment. While it is obvious that MOEs must measure variables and criteria closely related to the operation's specified objective, it is less obvious, but every bit as necessary, that the commander have access to measures relative to the various culminating points relevant to the operation. A full discussion of the concept of culmination and culminating points would be beyond the scope of this paper; it is sufficient to say that unless the commander is aware of the onset of culmination, he or she may form a false impression of the progress of the mission. Factors of culmination that are particularly pertinent within the context of humanitarian assistance operations and MOOTW in general include: a change in the situation due to political events or other factors altering the equation, change in mission ("mission creep"), changes in the degree of cooperation experienced, as well as changes in the state of morale and the level of commitment. Some of these lend themselves to quantitative measure--others do not, but all must be assessed.[17]

Be appropriate to the concept of operations. Since they will themselves affect the shape of the operation, MOEs should consider and be consistent with both the methods employed and the principles of war and military operations other than war. MOEs that

emphasize methods inconsistent with the commander's concept of operations should be rejected.

MOE DEVELOPMENT IN MOOTW PLANNING SITUATIONS

The Process

The multiplicity of agencies likely to be involved in MOOTW presents the commander with the problem of developing a plan, including supporting MOEs, that capitalizes on the expert knowledge of diverse participants. The crux of the issue is developing a process for building a consensus that can be translated into an executable plan. This is no mean feat when one considers the fact that the field of participating agencies may include military forces from other nations, international organizations, other US government agencies, as well as non-governmental and private volunteer organizations. Some may be hesitant to cooperate closely with military authorities while the character of other agencies may make such cooperation problematic from our point of view.

The process described below is proposed as a means to facilitate the development of a set of MOEs built on the characteristics described above that takes full advantage of available expert opinion and knowledge while preserving military independence. While this paper does not attempt to deal with the myriad of issues related to organizing the meetings required to support this, employing a modification of the "Delphi method" may prove useful in this regard. The Delphi method is a process for eliciting expert opinion, refining judgment and building group consensus developed at the RAND Corporation in the late 1950's. Appendix 1 to this report provides background information, describes the Delphi method in greater detail and discusses modifications making it more useful to time-compressed action planning. The process consists of six steps:

Concept of Operation Development. Participating agencies convene to agree on a mission statement, determine a course of action, and develop a concept of operations

(CONOPS). Essentially what is sought here is a broadly defined meeting of the minds, not a detailed operational product. The format of this meeting is beyond the scope of this paper, but would be flexible with participation built around a core of reliable and essential participants. Wider participation, within the limits of manageability and security, is likely to produce a better product.

Derivation of Task Listing. A refined task listing is derived in support of the course of action and concept of operations. Participation at this stage of the process may be limited to action and key supporting agencies.

Development of Criteria. Input is solicited concerning what data is required to support decision making. This results in a set of preliminary criteria. These are reviewed to determine if they are appropriate to the CONOPS as well as to determine if they are meaningful and sensitive. Those that are not are rejected, while those that pass the test are retained.

Development of Variables. The retained criteria are reviewed and input is solicited concerning what needs to be measured to support an assessment of the criteria. This results in a preliminary set of variables which are reviewed to determine if they are appropriate to the CONOPS as well as to determine if they are meaningful and sensitive. Those that are not are rejected, while those that pass the test are retained.

Development of Methodology. The retained variables are reviewed and a standard methodology is developed. This ensures the application and reporting of MOEs is standardized--of particular importance in cases where MOEs require subjective judgment.

Execution and Continuous Reassessment. Finally, the MOEs are integrated into the operational plan and continuously reassessed during the execution phase.

The Product: MOE Substance

Note: An annotated list of possible MOEs is included as appendix 2. This section of the paper should be read with one eye on that appendix, which provides details of what is sketched only in broad brush here.

In terms of substance, we should consider seven potential categories of MOEs related to HA operations:

(1) Level of Violence and Security

(2) Infrastructure

(3) Medical and Public Health

(4) Agriculture

(5) Factors Affecting Mission Turnover and Withdrawal

(6) Legitimacy and Restraint

(7) Morale and Miscellaneous Matters

Categories (1) through (4) above were suggested by *HA: Multiservice Procedures for Humanitarian Support Operations*;[18] the remaining are my own recommendations. The specifics of the particular HA operation will help the commander decide which MOEs are most appropriate.

The bottom line is that both judgment in the construction of MOEs and honesty in reporting and evaluation is critical. The adroit commander will seek as broad a knowledge base as possible and construct a set of MOEs that is consistent with the mission and susceptible to honest and objective reporting. The results should be evaluated with honesty and objectivity and with due regard given to intangibles, indications of trends and the onset of culmination, bearing in mind that MOOTW, more so than war itself, is not a zero-sum game. Selection of MOEs is a highly situation

dependent; once selected, MOEs should be continuously reevaluated, modified, discarded or replaced as appropriate.

REFLECTIONS AND CONCLUSIONS

In summary, the following reflections and concluding comments are offered for consideration. First, MOEs, central to planning and decision making in war, have a similar place in MOOTW. In both circumstances the commander, without some means of gauging the dynamics of the situation, is likely to lose his or her situational awareness and orientation to the detriment of the mission.

Second, measures of effectiveness deserve formal consideration during the planning process. This may be even more important in MOOTW since changes in the situation may be less readily apparent.

Third, MOEs should be addressed formally in operational plans, orders and other products so that all parties concerned may develop a common understanding of the mission assessment requirements.

Finally, the application of MOEs must be rational, and related to purpose, method, and situation. This requires ongoing input from all concerned and the development of detailed, substantive knowledge is a must.

MOEs are best thought of as a tool, an essential resource for the commander and staff to use in accomplishing their mission as efficiently and effectively as possible. MOEs support mission accomplishment by enhancing situational awareness. If the planning process is seen as a continuous cycle of planning, execution, evaluation--an OODA loop--then smart construction and use of MOEs can serve to tighten the loop, thus serving both an abstract and a highly concrete purpose.

APPENDIX 1:

THE DELPHI METHOD MODIFIED AND APPLIED TO MOOTW PLANNING

As discussed in the main text of this report, one of the chief problems faced by the commander developing a plan for a MOOTW scenario is eliciting expert opinion and knowledge and forming a consensus that may serve as a basis for the operation. The traditional approach to a problem such as this is an open brainstorming session or round-table discussion. Such an approach suffers from two defects. First, brainstorming and round-tables tend to produce a divergence of opinion and are hard to control. Thus they are not conducive to use in a situation where a large and diverse group must develop an informed consensus in a short time. Second, such methods are "beset by psychological factors such as the presence of a dominant, persuasive personality, the tendency to want to meet the approval of the group and an unwillingness to change an opinion which has been publicly expressed."[19]

The Delphi method, an application of operations research practice, is a process for eliciting expert opinion, refining judgment and building group consensus developed at the RAND Corporation in the late 1950s. The technique emphasizes the elimination of committee activity and thereby reduces certain related psychological factors such as specious persuasion and the bandwagon effect of publicly expressed opinion. It eliminates direct debate and provides participants with controlled feedback and information throughout the process. The Delphi method, as opposed to traditional brainstorming techniques, tends to work toward a convergence of opinion and has been used as the basis for complex planning, including, in one pilot study, the development of MOEs for the evaluation of the US Army's 1973 CONUS reorganization.[20]

The method has been described as "a rapid and relatively efficient way to 'cream the tops of the heads' of a group of knowledgeable people."[21] In its original form it is based on three features: (1) anonymous response, (2) iteration and controlled feedback,

and (3) statistical group response. Typically, participants would be asked to respond to a questionnaire. Responses would be tabulated and statistical feedback, along with comments and background information would be provided to all respondents and a second round of opinion would be solicited. Through a process of sequential polling and feedback, a group opinion, expressed in statistical form as a frequency distribution, would be formed. Experience has shown that such an opinion would emerge in three to five iterations.[22]

Some modification and adaptation of the Delphi method is required before it can be used as a tool in MOOTW planning as its highly structured format and reliance on statistics is not optimized for crisis planning. Conceptually, however, Delphi is easily adaptable and has the advantage of not requiring the physical presence of participants. While a full discussion of the myriad details required to support such a process is beyond the scope of this paper, in practice the commander may designate a member of his or her planning staff to serve as facilitator for the process and maintain focus. The facilitator would develop a set of questions designed to elicit the opinions of participants and serve as an honest broker in compiling and distributing the responses while ensuring planning deadlines are met. Given the nature of the subject matter, reliance on quantitative analysis would be minimal and turnaround times between rounds short, but the emphasis on anonymity and feedback would be preserved. Communications via modem and modern telecommunications capability have the potential to support this process, while allowing key participants to remain on station. Use of these media may also streamline consensus building by simply depersonalizing the exchange of opinion. The facilitator would have to have some basic familiarity with the Delphi method, but due to the simplicity of the technique no extensive training would be required. This process could proceed in parallel with the interagency framework of the US government and possibly piggyback on the Humanitarian Assistance Survey Team (HAST) procedure described in

Joint Publication 3-08 *Interagency Coordination During Joint Operations*. The process would remain under military control and steps would be taken to ensure security.

Norman Dalkey's *The Delphi Method: An Experimental Study of Group Opinion* provides a good overview of the method and can serve as a point of departure for further research.

APPENDIX 2:

POSSIBLE MEASURES OF EFFECTIVENESS FOR COMPLEX HUMANITARIAN ASSISTANCE OPERATIONS

Note: This appendix presents possible MOEs for a complex humanitarian assistance operation. The listing is divided into seven criteria areas. Four of these areas, security and level of violence, infrastructure, medical and public health, and agriculture, are suggested by *HA: Multiservice Procedures for Humanitarian Assistance Operations*. Within these areas, variables described in that publication are indicated in italics. The other criteria and variables listed and *all* comments are my own. I have indicated those variables that I feel require trend analysis over time. I have included legitimacy and restraint as a single criterion area because of the close connection between these two principles and because of their importance to MOOTW. Criteria related to the other principles of MOOTW or aspects of the social, political and economic infrastructure might be appropriate for inclusion in this section if dictated by mission requirements. To avoid duplication variables are listed only once, although several of the criteria and variables are obviously applicable in more than a single area. As each operation is unique, this listing can do nothing more than suggest possible variables that might be adapted to a given operation. No attempt is made here to delineate the full range of measures pertaining to force sustainment, readiness, or other similar areas--such issues are ingrained as a part of routine military operations.

I. Criterion: Security and Level of Violence

Variable: *Percentage of relief supplies reaching distribution centers/distribution points/feeding centers.*

Source: IOs, NGOs, PVOs, HAST, OFDA DART.

Comment: May be susceptible to misrepresentation Trend analysis desirable.

Variable: *Number of violent acts against NGOs and PVOs.*

Source: IOs, NGOs and PVOs.

Comment: Includes subdivisions for individual and group acts. Requires standard definition of violent act. Trend analysis desirable.

Variable: *Number of road blocks or checkpoints manned by factions or bandits.*

Source: IOs, NGOs, PVOs, J2.

Comment: Requires establishment of a common definition between JTF and other agencies. Should also report the location and character of activity undertaken (i.e., any attempted extortion, etc.). Trend analysis desirable.

Variable: *Convoy guard requirements.*

Source: IOs, NGOs, PVOs.

Comments: NGOs/PVOs may over report requirements in order to secure related military assistance. Reported requirements should be verified by JTF personnel. Trend analysis desirable.

Variable: *Security guard requirements.*

Source: IOs, NGOs, PVOs.

Comments: NGOs/PVOs may inaccurately characterize security requirements. Reported requirements should be verified by JTF personnel. Trend analysis desirable.

Variable: Number of hostile acts targeted against military forces

Source: Field reports

Comments: Methodology should standardize description of "hostile act" for reporting purposes. Trend analysis desirable.

Variable: Indications of organized opposition.

Source: J2

Comments: Intent is to assess the character of any opposition with signs of organized opposition being of obvious. concern. Standardized reporting criteria required. Note that this variable may also serve as an indicator of changes in the perceived legitimacy of the operation. Trend analysis desirable.

Variable: Reports of military weapons

Source: Field reports, J2

Comments: Intent is to assess the hardware capabilities of any opposition. Report of any sort of weapon of interest by category. May want to establish special interest categories. Trend analysis desirable.

Variable: Incidence of violence within the community.

Source: Field reports, J2.

Comments: Refers to acts within the community not targeted at military or relief organization personnel or assets but still indicative of the level of violence. Trend analysis desirable.

II. Criterion: Infrastructure

Variable: *Airfield capacity.*

Source: J3.

Comments: May include a number of subcategories.

Variable: *Water sources.*

Source: J4, NGOs/PVOs.

Comments: To be meaningful, would have to index amount of water reasonably available on a per capita basis by geographic area. This is a critical variable, but one that requires careful articulation.

Variable: *Percent trafficability for Main Supply Routes (MSRs) of key relief centers.*

Sources: J4.

Comments: Vague and subject to extraneous. factors, this variable is of obvious. concern, but will be difficult to apply.

Variable: Evidence of emerging local food distribution network.

Sources: J2, J4, NGOs/PVOs.

Comments: Refers to the re-establishment of markets, commerce, storage and distribution centers exclusive of the relief effort. Standardized definitions required. May be best assessed by a simple characterization of "improving" or "declining."

III. Criterion: Medical and Public Health

Variable: *Crude morality rates.*

Sources: NGOs/PVOs.

Comments: Not sensitive in the short term. Nonspecific. Trend analysis and breakdown by cause of death and demographics will provide more useful information.

Variable: *Infant and child (under five) mortality rates.*

Sources: NGOs/PVOs.

Comments: Not sensitive in the short term. Nonspecific. Trend analysis and breakdown by cause of death and demographics will provide more useful information.

Variable: *Cause specific mortality rates for malnutrition, diarrhea, acute respiratory infections and other diseases as may be indicated.*

Sources: NGOs/PVOs.

Comments: Not sensitive in the short term. Will require trend analysis to be meaningful.

Variable: *Severe malnutrition measurements (i.e., less than 70% of height and weight standard).*

Sources: NGOs/PVOs.

Comments: Not sensitive in the short term. Will require trend analysis to be meaningful.

IV. Criterion: Agriculture

Variable: *Market price of food and agricultural commodities.*

Sources: NGOs/PVOs.

Comments: Requires standardized methodology.

Variable: *Household food resource survey.*

Sources: NGOs/PVOs.

Comments: Requires standardized survey methodology. susceptible to reporting error.

Variable: *Food production.*

Sources: NGOs/PVOs.

Comments: Long term measure. Not sensitive in the short term. Trend analysis required.

Variable: Land area under cultivation.

Sources: J2, overhead sensors.

Comments: Long term measure. Not sensitive in the short terms. Provides raw data on which to base further estimates.

Variable: Animal husbandry.

Sources: NGOs/PVOs

Comments: Measures of change in animal herds. Suggestive of a number of related variables.

Variable: Animal fodder/pasturage availability.

Sources: NGOs/PVOs

Comments: Provides raw data on which to base further estimates.

Variable: Irrigation availability.

Sources: NGOs/PVOs.

Comments: Suggested method would be to measure in terms of land area in which irrigation is available.

V. Criterion: Factors Affecting Mission Turnover and Withdrawal

Variable: Dependence on JTF unique capabilities.

Source: J4, medical, other.

Comments: Refers to dependence on medical, logistical and other support that is unique to the JTF. A decreasing dependence on these resources will ease turnover.

Variable: Number of internal refugees

Source: IOs, NGOs, PVOs.

Comments: Trend analysis desirable.

Variable: Load on relief agencies.

Source: IOs, NGOs, PVOs.

Comments: Measures relief provided in terms of meals, relief supplies, and other goods and services provided to the end-user. Trend analysis desirable.

VI. Criterion: Legitimacy and Restraint

Variable: Incidence of use of force against local populace.

Source: Field reports.

Comments: This is a critical measure. Standardized methods and definitions are required and steps should be taken to ensure the integrity of the reporting systems. Trend analysis desirable.

Variable: Incidence of violence, theft, vandalism, damage to equipment, etc. directed at JTF assets.

Source: Field reports.

Comments: Broader in scope than hostile acts, the intent of this variable is to assess the local populace's attitude toward JTF forces as opposed to the physical security climate. Standard definitions of such acts must be provided. Trend analysis desirable.

Variable: Unfavorable media coverage.

Source: Public Affairs Officer.

Comments: Highly subjective, but of significant value in assessing the local and wider area perceptions of mission legitimacy. Many factors must be considered, e.g., media involved, credibility, likely exposure, nature of the story, etc.

Variable: Favorable Media coverage.

Source: Public Affairs Officer.

Comments: As above.

VII. Morale and Miscellaneous Factors

Variable: Disciplinary infractions

Source: Field reports

Comments: Provides one basic indication of state of own force morale. Methodology and standard reporting requirements will have to be specified. Subject to reporting error. Trend analysis desirable.

Variable: Friendly morbidity reports

Source: Force medical authorities.

Comments: Provides one basic indication of state of own force morale and readiness. Standard methods for collection must be established. Trend analysis desirable.

NOTES

[1]US Joint Chiefs of Staff, Joint Doctrine for Military Operations Other Than War (Joint Pub 3-07), 9 October 1996, p.III-4.

[2]US Mission to the United Nations, "Global Humanitarian Emergencies," 1996. pp 1-6.

[3]Ibid., p. 22.

[4]Ibid.

[5]Ibid.

[6]Joint Pub 3-07, p. III-4.

[7]Center for Naval Analysis, Military Support to Complex Humanitarian Emergencies: From Practice to Policy (1995 Annual Conference Proceedings), p. 12.

[8]Ibid., p.45f.

[9] Ibid., p. 34.

[10]In fact, LtGen Zinni, USMC, former Director of Operations for UNITAF Somalia and Commander of Combined Task Force Operation United Shield, the keynote speaker at the 1995 CNA Annual Conference, noted that such commitments are often easier to sell than other types of MOOTW and thus commitments not fundamentally humanitarian in nature may be sold as such (CNA 1995 Annual Conference Proceedings, p. 16). Haiti is seen by some as a case in point.

[11] US Naval War College, "Commander's Estimate of the Situation" (NWC 4111), July 1997, p.1.

[12] HA: Multiservice Procedures for Humanitarian Assistance Operations, p.4-7.

[13] Ibid.

[14] Ibid.

[15]NWP 11 p. 2-13 and HA: Multiservice Procedures for Humanitarian Assistance Operations pp 4-6 and 4-7.

[16]Experience has shown that an efficient way to institutionalize this liaison is through the establishment of a Civil-Military Operations Center (CMOC). Asking the right questions and "knowing what you don't know" are both very powerful considerations. In this regard, Lt Gen Zinni, based on his experience in Somalia, emphasized need to develop a broad base of intelligence. He specifically cautioned against "capture" by the local intelligentsia and academics as these groups, while articulate and highly visible, are by definition removed from common concerns of the majority (CNA *Proceedings*, p. 19).

[17]It is my belief that the nature of MOOTW calls for a broader definition of culmination and a wider range of culminating points than do traditional operations. For instance, steady progress may be gauged in the process of food distribution. If, however, other factors work toward extending the duration of the mission, culmination in the form of failing public domestic support at home or an increasing hostile local climate may be reached long before the objective is attained. Historically, variants of this phenomenon can be seen again and again in classic military operations--the surges back and forth across North Africa in World War Two and up and down the Korean peninsula provide telling examples of the consequences of measuring relative only to the objective while ignoring the evaluation of culmination. Considering the history of complex humanitarian emergencies and recalling the protracted duration typical of MOOTW, culmination must be considered when developing useful MOEs. LCDR Barbara Strickland's "Culminating Points in Peacetime Operations" (unpublished paper, Naval War College, Newport, RI, 1996) provides further insight into the nature and applicability of the concept of culmination in MOOTW.

[18]HA: Multiservice Procedures for Humanitarian Assistance Operations, pp.4-6 and 4-7.

[19]Bernice B. Brown, Delphi Process: A Methodology Used for the Elicitation of Opinions of Experts (Santa Monica, CA: RAND: 1968), p. 2.

[20]Described in Newell E. Vinson's, "A Delphi Study: Assessing Army Reorganization, CONUS 1973." Unpublished Research Paper, Industrial College of the Armed Forces, Washington, DC: n.d.

[21]Norman C. Dalkey, The Delphi Method: An Experimental Study of Group Opinion (Santa Monica, CA: RAND, 1968), p. 16.

[22]Ibid. Chapter 2.

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